

REMARKS

I. INTRODUCTION

Claims 1 and 18 have been amended. Support for the amendments to claims 1 and 18 can be found at least at paragraphs [0006], [0007], [0043], [0044], [0069] and [0070] of the published application. No new matter has been added. Thus, claims 1-18 and 20-27 remain pending in the present application. In light of the above amendments and the following remarks, Applicants respectfully submit that all presently pending claims are in condition for allowance.

The Applicants thank the Examiner for conducting the interview with the Applicants' representative on March 9, 2011. The Examiner's comments and explanation of the Examiner's position with respect to the claim interpretation were very helpful and the above amendments have attempted to satisfy the Examiner's suggestion in the interview to clarify the claims with respect to the three-dimensional aspect of the recited claims.

II. THE DOUBLE PATENTING REJECTION IS ACKNOWLEDGED

Claims 1-18 and 20-27 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 and 20-28 of copending Application No. 10/574,141 and claims 1-22 and 24-35 of copending Application No. 10/574,140. The Applicants acknowledge this **provisional** rejection and will address the rejection if the claims of the applications are deemed allowable and remain subject of a non-provisional double patenting rejection.

III. THE 35 U.S.C. § 103(a) REJECTIONS SHOULD BE WITHDRAWN

Claims 1-14, 18, 20-23, and 27 stand rejected under 35 U.S.C. §103(a) as unpatentable over Balogh (U.S. Published App. No. 2001/0028356) in view of Andrade et al. (U.S. Patent No. 6,954,193).

Claim 1, as amended, recites “[a] display device, comprising: a display panel having a plurality of separately addressable pixels for displaying ~~said~~ a three dimensional image, the three dimensional image being comprised of a plurality of different views, each view displaying a different image from the other views, each view corresponding to one of a plurality of different first viewing angles with respect to a first axis, the pixels being grouped into a plurality of groups with each group including a plurality of pixels, a number of pixels in each group corresponding to a number of the different views, each pixel of each group corresponding to one of the plurality of different views of the three dimensional image, wherein all the pixels in the plurality of groups corresponding to one of the views display the different image of the one of the views; a display driver for controlling an optical characteristic of each pixel to generate a grey scale image according to received image data; and a grey scale compensation device for further controlling light transmission characteristics of a plurality of pixels within each group to compensate for said optical characteristic of each pixel based on a second viewing angle in a second axis of the display panel, wherein the second axis is transverse to the first axis, wherein a correction applied to each of the plurality of pixels within the group is different.”

The Examiner correctly admits that Balogh fails to teach the recited gray scale compensation device. (*See*, 1/12/10 Office Action, p.5). However, the Examiner cites Andrade to cure this deficiency. (*See, Id.* at pp. 5-6). The Applicants have previously argued that Andrade was limited to 2D displays and thus was not applicable to the recited 3D display. The Examiner acknowledged that the Applicants have argued and clarified the claim language that the correction applied to each pixel of a group of pixels is different because each pixel in a group is directed to an individual viewing angle. (*See, Id.* at p.13). However, the Examiner went on to state that “the language of the claim remains non-specific an open to interpretation, and Examiner interprets that each of the pixels taught by Andrade provides a different view of the image (because each pixel provides a portion of the image, which corresponds to a different view.” (*See, Id.* at p.13-14). The Examiner went on to provide the suggestion that Applicants should

“specify the difference between a general viewing angle variation and the particular viewing angles provided by a 3-D display.” (*See, Id.* at p.14). The Examiner repeated this suggestion during the interview.

Accordingly, Applicants have amended claim 1 to specifically recite the features of the 3D viewing angles. Specifically, the Applicants have amended claim 1 to recite that “the three dimensional image [is] comprised of a plurality of different views.” The amendments further clarify that “each view display[s] *a different image* from the other views.” Thus, each view displays a different image from the other views. For example, a view displayed to the right eye of a user is a different image from a view displayed to the left eye of a user. Thus, the image is not a portion of the entire image as shown in Andrade, but each view is a different complete image. This interpretation is further evidenced by the amendment stating that “all the pixels in the plurality of groups corresponding to one of the views display the different image of the one of the views.” Thus, Applicants have amended claim 1 to specifically recite the features of a 3D viewing system that differentiate the claimed display device from the 2D device taught by Andrade.

Thus, based on these amendments to clarify the 3D nature of the claimed display device, those skilled in the art will understand that in a 2D display, such as the one described in Andrade, each of the pixels sends its information in all directions. That is, a pixel in a 2D display is not limited to a viewing angle, but viewers at any angle will see the same pixel. Thus, correcting any one pixel of a 2D display for a particular viewing angle will necessarily result in that pixel having a less than optimal viewing characteristic at other viewing angles. This is why Andrade generally requires sensor input to determine the location of a viewer. For example, Andrade states that the sensors include “a display orientation sensor, a viewing position sensor, or a viewer feature tracking sensor.” (*See, Andrade*, col. 5, lines 35-37). Andrade provides numerous examples of sensor inputs for determining the angle where a viewer is watching the display and/or the orientation of the display. (*See e.g., Id.*, at col. 8, lines 18-28; and col. 9, lines 31-35). Andrade does state that pixel level correction may be provided without sensor input, but

this is based upon “average value assumptions associated with viewing positions, display orientation, and the like.” (*See, Id.*, at col. 8, lines 29-35). Thus, even though sensor inputs are not required, Andrade still requires that there be values for these parameters in order to determine the pixel correction. This is because Andrade is correcting pixels on a 2D display for a single viewer or based on a single orientation of the display. A second viewer viewing the same pixels from a different angle would not have the benefit of a corrected image.

As described above, in the recited 3D display, viewers at different viewing angles are not seeing the same pixels or the same image, they are seeing the pixels that correspond to the viewing angle and image at which they are viewing the display. Thus, if one were to apply the correction described by Andrade to all the pixels in a group, the correction would be improper because the Andrade method assumes that the correction for all the pixels is for the same viewing angle. Therefore, claim 1 recites “a grey scale compensation device for further controlling light transmission characteristics of a plurality of pixels within each group to compensate for said optical characteristic of each pixel based on a second viewing angle in a second axis of the display panel, wherein the second axis is transverse to the first axis, *wherein a correction applied to each of the plurality of pixels within the group is different.*” The compensation is provided in this manner precisely because of the above three-dimensional aspect of pixel grouping described above.

Therefore, Applicants respectfully submit that neither Balogh nor Andrade disclose or suggest the above recited limitations of claim 1. Accordingly, the rejection of claim 1 should be withdrawn. Because claims 2-14 depend on and, therefore, contain all of the limitations of claim 1, it is respectfully submitted that the rejections of these claims should also be withdrawn.

Claim 18 recites a “method for displaying a three dimensional image on a display device, the three dimensional image being comprised of a plurality of different views, each view displaying a different image from the other views, each view corresponding to one of a plurality of different viewing angles, the method comprising the steps of: processing image data to form pixel data values for each one of a plurality of separately addressable pixels in a display panel, the pixels being grouped into a plurality of groups with each group including a plurality of pixels, a number of pixels in each group corresponding to a number of the different views, each pixel of each group corresponding to one of the plurality of different views of the three dimensional image, wherein all the pixels in the plurality of groups corresponding to one of the views display the different image of the one of the views as a function of an angle with respect to a first axis, the pixel data values each for controlling light transmission characteristics of a respective pixel to generate the different image; applying grey scale correction values to a plurality of pixel data values within each group to compensate for an optical characteristic of each pixel in a second axis of the display panel, wherein the second axis is transverse to the first axis, by controlling an amount passing through each pixel according to a three dimensional grey scale image to be displayed, wherein the grey scale correction values applied to each of the plurality of pixels within the group are different; and using the corrected pixel data values to drive pixels of a display panel to generate said image.”

Thus it is respectfully submitted that the rejections of claim 18 and its dependent claims 20-23 and 27 should be withdrawn for at least the foregoing reasons presented with regards to claim 1.

Claims 15-17 and 24-26 stand rejected under 35 U.S.C. §103(a) as unpatentable over Balogh in view of Andrade and further in view of Mochizuki (U.S. Patent No. 6,386,720).

Applicants respectfully submit that Mochizuki fails to cure the deficiencies of Balogh and Andrade and that Balogh, Andrade, and Mochizuki, taken alone or in any combination, fail to disclose or suggest the limitations of claims 1 and 18. Because claims

15-17 depend on and, therefore, contain all of the limitations of claim 1, it is respectfully submitted that the rejections of these claims should also be withdrawn. Because claims 24-26 depend on and, therefore, contain all of the limitations of claim 18, it is respectfully submitted that the rejections of these claims should also be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently pending in the application are believed to be in condition for allowance. If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to contact the undersigned.

Respectfully Submitted,

Dated: April 12, 2011

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